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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/540,219

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Jean-Bernard Fischer

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EXAMINER

VAUGHAN, MICHAEL R

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,219	<b>Applicant(s)</b> FISCHER ET AL.	
	<b>Examiner</b> MICHAEL R. VAUGHAN	<b>Art Unit</b> 2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6-5-07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The instant application having Application No. 10/540219 filed on 1/17/2006 is presented for examination by the examiner.

### **Priority**

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been received.

### **Oath/Declaration**

The Oath sent in on 1/17/2006 indicates there are three pages. However, only the first two pages are present in the application. Page 3 was omitted somehow. Page 3 likely has the signatures and thusly needs to be included. Applicant is advised to resend a copy of the Oath/Declaration so that a complete and proper Oath is present.

### **Drawings**

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawing references are in French. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### **Claim Rejections - 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

Claim 1 is rejected under 35 U.S.C. 101 as directed to non-statutory subject matter. The claimed invention is nothing more than an abstract idea that is not a practical application producing a useful, concrete, and tangible result. A claimed series of steps or acts that do not result in a useful, concrete, and tangible result are not statutory within the meaning of 35 U.S.C. 101. In this instance case, the claims recite, a method which is tied to a non-statutory class, software program per se.

Claims 2-8 are rejected under 35 U.S.C. 101 as non-statutory for at least the reason stated above. Claims 2-8 are depended on claim 1; however, they do not add any feature or subject matter that would solve any of the non-statutory deficiencies of claim 1.

Claims 17-25 are rejected under 35 U.S.C. 101 as directed to non-statutory subject matter of software, per se. The claim lacks the necessary physical articles or

objects to constitute a machine or manufacture within the meaning of 35 U.S.C. 101. It is clearly not a series of steps or acts to be a process nor is it a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. It is at best, function descriptive material per se.

Descriptive material can be characterized as either “functional descriptive material” or “nonfunctional descriptive material.” Both types of “descriptive material” are non-statutory when claimed as descriptive material per se, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994).

Merely claiming non-functional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because “[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.”). See MPEP 2106.01 [R-6].

Claims 18-25 are rejected under 35 U.S.C. 101 as non-statutory for at least the reason stated above. Claims 18-25 are depended on claim 17, however, they do not add any feature or subject matter that would solve any of the non-statutory deficiencies of claim 17.

### **Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 31, there is a contradiction of the limitation “that the first signature and the second signature are stored in the first register during the execution of the program” because the independent claim 26, states that during execution the second signature is stored in a second register. The contradiction renders the claim indefinite because it is not clear where for sure the second signature is stored or even whether there are two registers. Appropriate correction is required.

### **Claim Rejections - 35 USC § 102**

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-40 are rejected under 35 U.S.C. 102(e) as being anticipated by USP 7,168,065 to Naccache et al, hereinafter Naccache.

As per **claim 1**, Naccache teaches a method of making secure the execution of a computer program (EXE) including a set of at least one instruction, which method is characterized in that it includes:

- a first step (E30), prior to the execution of the computer program, of calculating and storing a first signature (SIG1) representative of the intended execution of the set of instructions (col. 4, lines 25-29),
- a second step (E50), during the execution of the set of instructions, of calculating and storing a second signature (SIG2) representative of the execution of the set of instructions (col. 4, lines 35-36), and
- a step (E60) of detecting an anomaly in the execution of the set of instructions on the basis of the first signature (SIG1) and the second signature (SIG2) (col. 4, lines 38-39).

As per **claim 26**, Naccache teaches a device for making secure the execution of a computer program including a set of instructions comprising at least one instruction, which device is characterized in that it includes (see abstract):

- a first register (REG1) (col. 4, line 8) for storing a first signature (SIG1) representative of the intended execution of the set of instructions (col. 4, lines 25-29),
- means (22) for calculating and storing in a second storage register (REG2) (col. 6, line 18) during the execution of the set of instructions a second signature (SIG2) representative of the execution of the set of instructions (col. 4, lines 35-36), and
- means (24) for detecting an anomaly in the execution of the set of instructions on the

basis of the first signature (SIG1) and the second signature (SIG2) (col. 4, lines 35-36) .

As per claim 2, Naccache teaches that the first calculation and storage step (E30) is executed during the generation [preparation] of the instructions (AI, AI3) of the computer program (col. 4, line 25).

As per claims 3 and 27, Naccache teaches that the second signature (SIG2) stored during the second calculation and storage step (E50) is retained in memory during the execution of at least one second instruction following the set of instructions (col. 5, lines 4-6 and 64-68). Naccache teaches using one the preceding values in memory to calculate the next value, so therefore it must remain in memory.

As per claims 4 and 28, Naccache teaches the first signature (SIG1) is obtained from the number of instructions in the set of instructions [accounts for each number of the instructions] (col. 9, lines 23-27),

- the second signature (SIG2) is obtained from the number of instructions from the set of instructions that have been executed [numerical value of executed instructions](col. 9, lines 31-35), and in that

the detection step (E60) detects an execution anomaly when the first signature (SIG1) and the second signature (SIG2) are different after the execution of the set of instructions [compare VHn to Vref] (col. 9, lines 60-64).

As per claims 5 and 29, Naccache teaches the first signature (SIG1) is obtained from the number of instructions in the set of instructions [accounts for each number of the instructions] (col. 9, lines 23-27),



- the second signature (SIG2) is obtained from the number [numerical value] of instructions from the set of instructions that have not been executed [next unexecuted instruction], this second signature (SIG2) being calculated from the first signature (SIG1) [recursive call](col. 9, lines 36-41), and

in that the detection step (E60) detects an execution anomaly when the value of the second signature (SIG2) is not zero after the execution of the set of instructions [compare V<sub>Hn</sub> to V<sub>ref</sub>] (col. 10, lines 14-19).

As per claims 6 and 30, Naccache teaches that an interrupt of the computer program is triggered when the value of the second signature (SIG2) is below a predetermined threshold (col. 4, lines 40-47).

As per claims 7 and 31, Naccache teaches that the first signature (SIG1) and the second signature (SIG2) are retained in memory (col. 1, line 47) during the execution of the program in the same register (REG1) (col. 9, lines 13-17).

As per claims 8 and 32, Naccache teaches the first signature (SIG1) is obtained from the code of a critical instruction of the set of instructions (col. 4, lines 25-29),

- the second signature is obtained from the code of the critical instruction, that code being stored at the same time as or after the execution of the critical instruction [jump] (col. 14, lines 32-35), and in that

- the detection step (E60) detects an execution anomaly when the first signature (SIG1) and the second signature (SIG2) are different after the execution of the set of instructions (col. 10, lines 14-19).

As per claims 9 and 33, Naccache teaches the first signature (SIG1) is obtained from the address of a critical instruction (col. 5, line 51) of the set of instructions, the address being obtained during or after the generation of the executable code of the set of instructions (col. 4, lines 25-29),

- the second signature (SIG2) is obtained from the address of the critical instruction, that address being stored (E30) at the same time as or after the execution (E30) of the critical instruction (col. 14, lines 32-38), and

- the detection step (E60) detects an execution anomaly when the first signature (SIG1) and the second signature (SIG2) are different after the execution of the set of instructions (col. 10, lines 14-19).

As per claims 10 and 34, Naccache teaches the critical instruction is a jump instruction (col. 14, line 10).

As per claims 11 and 35, Naccache teaches the first signature (SIG1) and the second signature (SIG2) are error detector codes (CRC1, CRC2) calculated from the code or from an address of an instruction of the set of instructions (col. 5, lines 53-58), and in that the detection step (E60) detects an execution anomaly when the first signature (SIG1) and the second signature (SIG2) are different after the execution of the set of instructions (col. 10, lines 14-19).

As per claims 12 and 36, Naccache teaches that the error detector codes are cyclic redundancy check codes (col. 5, lines 53-58).

As per claims 13 and 37, Naccache teaches that the error detector codes are obtained by the logical combination (XOR) of the code or an address of at least one

instruction of the set of instructions (col. 5, lines 53-58). Naccache teaches the use of CRC which perform logical combination (XOR included) in order to carry out the operation. Examiner is not giving XOR patentable weight here as the syntax implies XOR as an example of logical combination.

As per claims 14 and 38, Naccache teaches the first signature (SIG1) and the second signature (SIG2) are respectively obtained during the generation and the execution of the instructions from at least two elements chosen from:  
the number of instructions in the set of instructions,  
the **code** of at least one instruction of the set of instructions (col. 5, lines 45-51),  
the **address** of at least one instruction of the set of instructions (col. 5, lines 45-51), and  
an error detector code calculated from the code or an address of at least one critical instruction of the set of instructions, the address being obtained during or after the generation of the executable code of the set of instructions (col. 5, lines 53-59), and in that the detection step (E60) detects an execution anomaly when the first signature (SIG1) and the second signature (SIG2) are different after the execution of the set of instructions (col. 10, lines 14-19). Naccache teaches using the code and address as hash inputs thus two criteria from the list are chosen.

As per claims 15 and 39, Naccache teaches that it includes a step (E70) of destroying at least a portion of the system on which the computer program is executed, this step of destroying being made when an execution anomaly is detected in the detection step (col. 4, line 45).

As per claim 16, Naccache teaches in that the first signature (SIG1) is generated automatically [already generated before execution of program] (col. 4, line 25-30).

As per **claim 17**, Naccache teaches a device for processing a computer program including a set of at least one instruction, characterized in that it includes means (12) for calculating and storing the first signature (SIG1) representative of the intended execution of the set of instructions prior to the execution thereof (col. 4, lines 25-30).

As per claim 18, Naccache teaches the first signature (SIG1) [Vref] are adapted to calculate and store information obtained from the number of instructions of the set of instructions (col. 9, line 65 - col. 10, line 5).

As per claim 19, Naccache teaches the means (12) for calculating and storing the first signature (SIG1) are adapted to obtain and store information obtained from the code of a critical instruction [jump] of the set of instructions (col. 14, lines 33-35).

As per claim 20, Naccache teaches means for generating executable code from the computer program (col. 8, lines 35-36).

As per claim 21, Naccache teaches the means for calculating and storing the first signature (SIG1) are adapted to obtain and store information obtained from the address of a critical instruction (col. 5, line 51), the information being obtained of the set of instructions by the means (14) for generating executable code (col. 8, lines 35-40).

As per claim 22, Naccache teaches that the critical instruction is a jump instruction (col. 14, lines 32-34).

As per claim 23, Naccache teaches that the means (12) for calculating and storing the first signature (SIG1) are adapted to calculate and store information obtained

from an error detector code (CRC1) calculated from the code or an address of at least one instruction of the set of instructions (col. 5, lines 53-58).

As per claim 24, Naccache teaches that the error detector code (CRCI) is a cyclic redundancy check code (col. 5, line 57).

As per claim 25, Naccache teaches that the error detector code is obtained by a logical combination (XOR) of the code or an address of at least one instruction of the set of instructions (col. 5, lines 53-58). Naccache teaches the use of CRC which perform logical combination (XOR included) in order to carry out the operation. Examiner is not giving XOR patentable weight here as the syntax implies XOR as an example of logical combination.

As per claim 40, Naccache teaches a microcircuit card [smart card] characterized in that it includes a securing device according to claim 26 (col. 6, lines 27-35).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL R. VAUGHAN whose telephone number is (571)270-7316. The examiner can normally be reached on Monday - Thursday, 7:30am - 5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2131

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. R. V./

Examiner, Art Unit 2131

/Ayaz R. Sheikh/

Supervisory Patent Examiner, Art Unit 2131